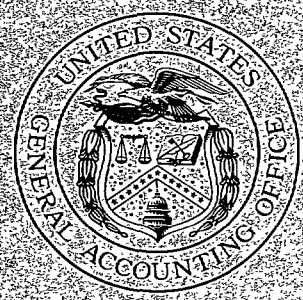
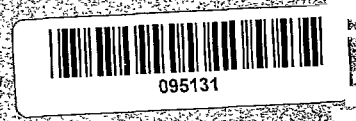




CAN FEDERAL PRODUCTIVITY BE MEASURED?

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

1975

FOREWORD

From the days when Yankee ingenuity was a household word, Americans have known that increased productivity meant a higher standard of living. And our productivity has increased surely but steadily for decades. This is why for many years we have been able to compete successfully in world markets and why the people of the United States have one of the highest standards of living in the world.

While we have learned how to measure and increase productivity in industrial and commercial industries--the private sector--we have not known comparatively how efficient we have become in the public sector. Until recently, no one has determined on the basis of actual data how productive, or unproductive, governments--local, State or Federal--really were.

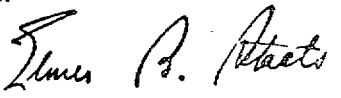
Commenting on the situation not long ago for the Federal Government, the Chairman of the Subcommittee on Priorities and Economy in Government, Joint Economic Committee, said:

> "In view of the importance of the Federal sector to the economy as a whole, and in view of the responsibility vested in Congress for controlling Federal expenditures, I find it distressing that we have no real measures of efficiency for the Federal sector."

In the early 1970s this situation began to change. A permanent system for measuring the productivity of the Federal work force was established. The General Accounting Office (GAO) is one of several government agencies working together to set up the new system.

From our work on this project we have learned how government managers can use productivity data in analyzing their operations, in identifying problems, and in creating a basis for improving their productivity. We know now that productivity measurement in government can be an aid to effective management. Used properly, it will contribute measurably to more efficient, less costly government.

This booklet tells you what productivity is, why its application can make government better, and how its improvement is being accomplished.



Comptroller General
of the United States

January 1975

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PRODUCTIVITY--WHAT IS IT?

Productivity is what a worker achieves when he or she makes a product or performs a service.

When a worker assembles a radio (or any tool, machine, or article) he transforms many single units, useless by themselves, into a product that functions and which people buy. In the case of a radio, it provides entertainment and information.

In a somewhat different way, a barber is productive when he cuts hair. This is a service people want and pay for.

Now the productivity of the industrial worker or the service worker depends upon how he works and what equipment he has to work with. If the industrial worker formerly assembled 5 radios an hour and increases his output to 5 1/2, he has improved his productivity by 10 percent. Similarly, if the barber cuts 5 1/2 heads of hair an hour when he formerly used to cut only 5, he has improved his productivity by 10 percent.

Whether in manufacturing or in a service industry, the worker improves his productivity if he accomplishes more within a given timespan without degrading the quality of his work. This improvement can result not only from his efforts but from use of better work techniques, more effective technology, training, and from improved working conditions.

The same principle can be applied to the worker in the public service.

INCREASED PRODUCTIVITY LEADS TO A HIGHER STANDARD OF LIVING

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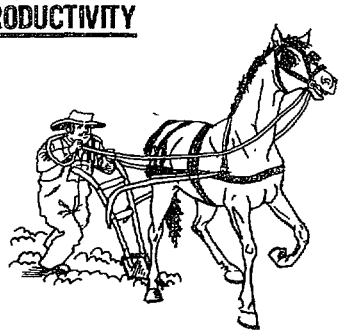
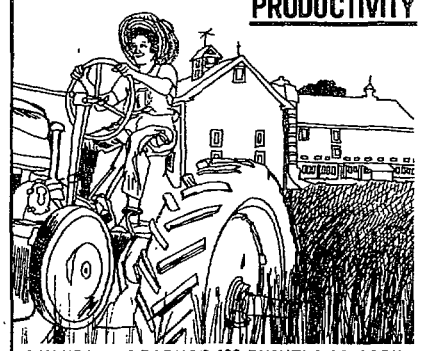
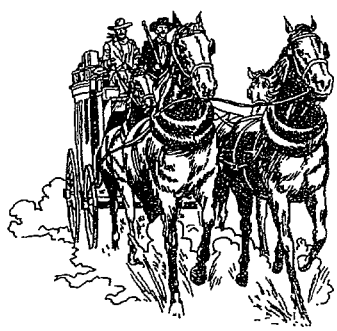
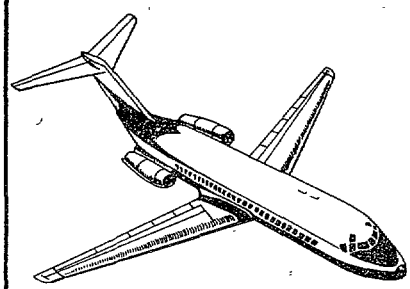
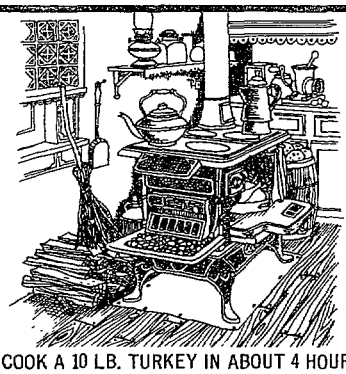
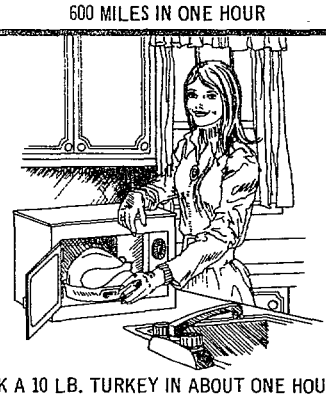
	
150 HOURS TO PRODUCE 100 BUSHELS OF CORN	6 HOURS TO PRODUCE 100 BUSHELS OF CORN
	
10 MILES IN ONE HOUR	600 MILES IN ONE HOUR
	
COOK A 10 LB. TURKEY IN ABOUT 4 HOURS	COOK A 10 LB. TURKEY IN ABOUT ONE HOUR

WHY IS PRODUCTIVITY IMPORTANT?

Increased productivity is a keystone to improved living standards. No one is helped by inefficiency.

By and large, all of us share in what we produce as a society. If that output remains static, most of us will be forced to keep our standard of living static. If the available pool of goods and services has not increased, our share of those goods cannot increase without taking something away from someone else. Thus, the more output we get from each unit of input the more goods there are to share.

If, however, output can be increased, the total pool of goods and services can be increased. Then the share of each can be enlarged without hurting anyone else. This is what the industrial revolution was, and is, all about--a revolution that can be illustrated by its effect on the American farm.

Better productivity has reduced the number of farmers, from 90 percent of the population in the 1800s to less than 10 percent today, while the availability of food per person is much greater now than it was in the 1800s.

Productivity is a product of many factors but is usually measured by dividing units produced by man hours worked

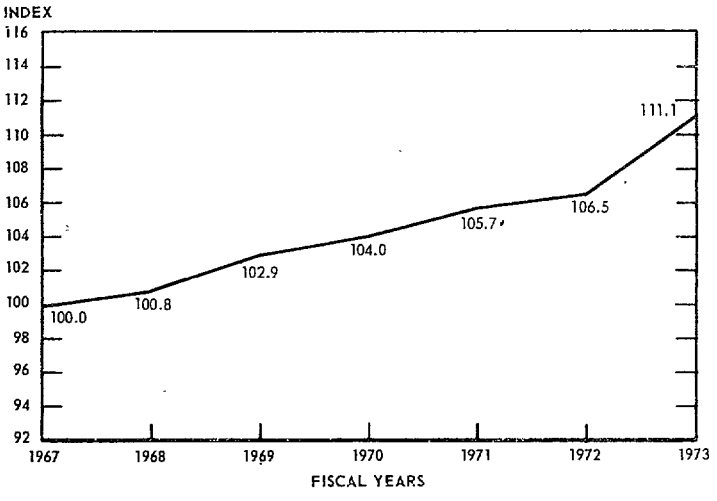
HOW CAN YOU MEASURE IT?

Measuring productivity for many types of work is not difficult. When there is one homogeneous product produced, it simply requires counting output and dividing it by some unit of labor. For example, if our radio worker assembles 25 radios in 5 hours, we can divide 25 by 5 and compute a productivity rate of 5 radios an hour. If we want to compute his or her productivity over a longer time, we make similar computations for the period and plot the progress.

Take 3 consecutive weeks in which he or she produced 5, 5.2, and 5.5 radios an hour and put these figures on a chart. If we wish to, we can convert the chart into percentages and show that for the 2d week his or her productivity went up by 4 percent over the 1st week and the 3d week it went up 10 percent over the 1st week.

Of course, the productivity of some jobs is not as simple to compute. It is relatively easy when output is the same, or nearly so. When output varies, meaningful productivity measurement is more difficult. For example, measuring the productivity of trial lawyers is a challenge because their cases vary in length and complexity. Various methods have been developed to combine the diverse products into meaningful totals and measures are available for many activities, industries and sectors. However, not all job productivity can be measured meaningfully at the current state of the measurement art.

IN 6 YEARS FEDERAL PRODUCTIVITY HAS INCREASED 11.1 PERCENT



BASED ON 1.7 MILLION FEDERAL WORKERS

CAN PRODUCTIVITY OF FEDERAL GOVERNMENT WORKERS BE MEASURED?

The answer is yes for most Federal workers.

Although for many years the Government measured the productivity of the private enterprise sector of the American economy, it did not measure its own. Challenged to do so by the Chairman of the Subcommittee on Priorities and Economy in Government, Joint Economic Committee, (as we have seen in the Foreword), Comptroller General Elmer B. Staats organized a team, with members from GAO, the Office of Management and Budget, and the Civil Service Commission, to assess the feasibility of measuring the productivity of Federal workers.

The joint team concluded that the productivity of Federal workers could be measured. With representatives of other Government agencies, including the Bureau of Labor Statistics which computes productivity for the private sector, they constructed an index that showed what was happening to the productivity of Federal workers.

The mechanism for measuring productivity has now been established on a permanent basis. A JFMIP report[1] on productivity trends for fiscal years 1967-73 covers the productivity of 1.7 million civilian employees, which represented about 61 percent of Federal civilian employment. Since not all employee output is susceptible to counting or readily measurable for productivity purposes, 100 percent of employee efforts probably never can be measured.

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[1] Joint Financial Management Improvement Program Report on Federal Productivity, June 1974.
Volume I--Productivity trends, FYs 1967-73
Volume II--Productivity case studies

It has been possible to measure many manufacturing, printing, maintenance, supply, and various administrative service activities. On the other hand, most research and development and general management functions are not readily measurable.

The result showed that, during fiscal years 1967-73, productivity of the 1.7 million Federal workers measured increased by 11.1 percent, or an average of 1.8 percent a year. Without that increase in productivity, it would have cost Uncle Sam almost $2 billion more in those seven years to get its work done. So, increased productivity really means more efficient, less costly government.

Increased productivity can help keep governmental cost down without reducing the quality of government services

WHY IS MEASUREMENT OF PUBLIC SECTOR PRODUCTIVITY PARTICULARLY IMPORTANT TODAY?

Over the past decade, the public sector expenditures at all levels of Government have increased at a faster rate than any other major category of expenditures which make up the gross national product. Governments, either directly or through others who receive Government funds, now buy approximately one-third of all the goods and services which make up the gross national product.

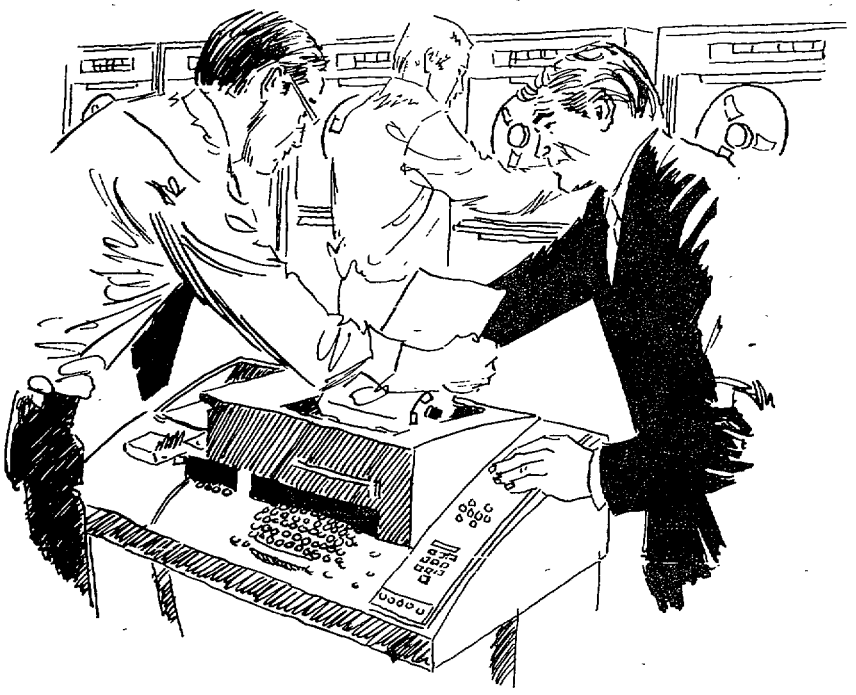
Moreover, the Federal Government now provides more than 20 percent of the total revenue of State and local Governments through various forms of financial assistance. Over the past decade this assistance has increased about 10 percent a year.

Because substantial Federal funds now go to help finance State and local governments, the Federal Government has an interest in their productivity as well as in its own. A number of State and local governments have shown interest in both measuring and increasing their productivity, but much remains to be done.

The Federal Government has devoted a great deal of attention and effort to steps to increase productivity in the private sector as one way of improving the U.S. competitive position in world markets and of easing inflationary pressures. The Federal Government should apply the same admonitions and efforts to its own operations and, hopefully, even set an example of improved productivity as a challenge to others.

The potential for savings in Government through increased productivity is enormous. Federal, State, and local payrolls now approximate $150 billion each year, or over $400 million per day. Even small changes in productivity thus have tremendous potentials for savings through reducing costs.

WHAT DO WE DO WITH PRODUCTIVITY FIGURES?



IS JUST MEASURING PRODUCTIVITY ENOUGH?

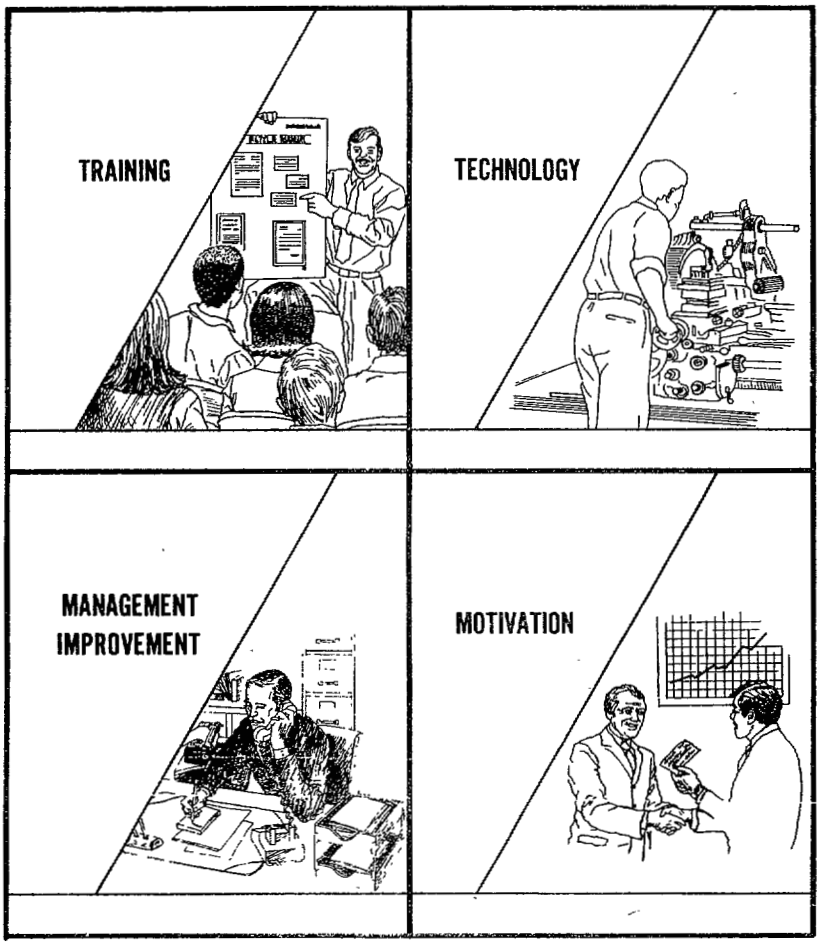
Productivity measurement, whether in industry or government, would be a meaningless exercise if it consisted only of gathering statistics and adding up the results. The important question is, what do we do with the figures after we get them? The answer is, we must use them as a tool to find where operations can be improved and where costs can be reduced.

For increases in productivity, we must ask, how did they occur? If we study the causes, perhaps we can get further increases. For declines in productivity, we need to study the causes and see whether something can be done to reverse the trend.

At all times, we in Government need to be open-minded toward possible changes we can make to equipment and facilities and to measuring their worth in terms of what they will do to increase productivity and decrease costs of doing the Government's work.

Thus, although productivity measurement can be a real help in keeping costs down and in improving efficiency, it is not the measurement that does it, it is what we do with the measurements after we get them.

PRODUCTIVITY CAN BE IMPROVED THROUGH:



HOW CAN PRODUCTIVITY BE IMPROVED?

Productivity can be increased in four basic ways.

--Training

--Technology

--Management improvement

--Motivation

A worker can produce more by learning to do his job more efficiently--job training. This is what happens frequently with new employees. At first their productivity is low; as they learn, the number of items they complete in a day increases and they become more productive.

Another way of increasing productivity is to give a worker a machine that enables him to accomplish more in the same period of time--new technology. A worker equipped with a power-driven posthole digger will dig far more holes than one equipped with a spade.

Another way is to streamline the working process in which the worker is engaged--management improvement. For instance, if our radio assembler has to walk 50 feet everytime he or she needs parts, productivity can be improved by putting the parts within reach so that the assembler does not have to stop working to get more parts. Increased productivity comes from working smarter rather than working harder.

Finally, the worker who enjoys what he is doing usually does more--motivation. Job satisfaction is important to productivity.

For larger groups of people employed on a stable basis, providing new equipment to help them do their job is believed to be the most effective way to increase productivity. For example, some of the U.S.

productivity gains in the 1960s resulted from increased use of the computer and its ability to help people do complex tasks much more quickly.

IMPROVED PRODUCTIVITY

SAVES

$ AND MAN HOURS

WHAT ARE SOME EXAMPLES OF THE KIND OF SAVINGS INVOLVED?

Here are examples of Federal savings resulting from improved productivity due to the new technology.

--An automatic nailing machine costing $38,185 saved $240,000 annually.

--A machine for automatically loading smallarms ammunition costing $50,000 saved $453,000 annually.

--An automatic scrap compactor costing $29,000 increased the recovery price for scrap brass, reduced storage space, and saved over $47,000 annually.

An example of increased savings not involving new technology, but through management improvement is this. The Bureau of Customs' processing of foreign mail parcels had doubled in quantity since 1967. The Government has been able to handle Customs' inspection of this increase with a staffing addition of only 44 percent by improving its management systems and, particularly, by offering its employees opportunities to develop specialities in this function. This has afforded new opportunities to personnel who formerly were blocked in dead end jobs.

Another source for future productivity improvement will arise from providing employees with broader opportunities to be involved in the final products of their organization. Organizations which are successful in improving productivity are also emphasizing better working conditions or better opportunities for their employees.

IN USE TODAY

Technology	–OVER 7500 COMPUTERS –ABOUT 2000 NUMERICAL CONTROL MACHINES –MANY MECHANIZED OPERATIONS
Techniques	–INCENTIVE AWARDS PROGRAMS –WORKSHOPS AND SEMINARS –KEEPING EMPLOYEES WELL INFORMED OF CHANGES
Training	–JOB TRAINING PROGRAMS –UPWARD MOBILITY PROGRAMS –EMPLOYEE DEVELOPMENT

T + T + T = INCREASED FEDERAL PRODUCTIVITY

WHAT IS BEING DONE TO INCREASE FEDERAL PRODUCTIVITY?

On July 9, 1973, the Director, Office of Management and Budget, issued a memorandum that formally established the Government's acceptance of productivity measurement from then on. He told heads of departments and agencies they should continue productivity measurement and spelled out roles and responsibilities for each.

The Bureau of Labor Statistics collects the data and develops the productivity measures. The General Services Administration provides guidance and technical assistance on systems measurement, procedures improvements, and project mechanization. The Civil Service Commission provides policy guidance and technical assistance on the personnel management aspects of productivity.

The Joint Financial Management Improvement Program[1] task force was assigned the responsibility of analyzing the factors which have caused productivity changes and of preparing an annual report analyzing productivity trends and presenting case studies of factors contributing to productivity increases and decreases. The task force also continues to seek opportunities for expanding the coverage of the indexes, including their extension to State and local governments.

A useful technique of the joint program in this effort has been the conduct of a series of workshops. In these workshops, causes of productivity change

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[1]An organization to which all Federal agencies belong, directed by the General Accounting Office, Office of Management and Budget, Civil Service Commission, Department of the Treasury, and the General Services Administration.

and obstacles to improvement are discussed in an open environment where people from different agencies can exchange ideas and share experiences. Let's not forget that one of the most important ingredients necessary to any sizeable increase in productivity is the people involved. Keep them informed and get their help.

In addition, efforts are underway to identify opportunities for using labor-saving equipment and to help agencies acquire it. We believe special attention to such investments is necessary if the Government is to achieve its potential for improved productivity. And, as we have seen, this potential is worth many billions of dollars to taxpayers.